

ABSTRACT

A system and method for the efficient transmission of information in a code division multiple access (CDMA) wireless telecommunication system. The rate of reliable transmission is increased by implementing an orthogonal frequency-division multiplexing (OFDM) scheme in, for example, a direct-spread CDMA network, resulting in a multi-carrier CDMA (MC-CDMA) system. Information (such as voice and data), is encoded, divided, and spread across the frequency domain, rather than in the time domain as in traditional CDMA; the allowable transmission bandwidth is divided into a number of carriers. Using this scheme, a number of loading parameters such as code rate, data rate, and the number of streams into which the encoded data is divided may be varied to increase the performance of the system. Application of the variable loading parameter may be a function of channel quality, such as the presence of noise or the channel fading state.